

**IN THE CLAIMS:**

Please AMEND claims 1-62; and

Please ADD claim 63 as shown below.

1. (Currently Amended) A method of compensating for a radiation pattern in a radio system, the method comprising:

forming a primary radiation pattern by weighting signals of at least two functional antenna branches of a base station;

disconnecting at least one antenna branch; and

forming a radiation pattern ~~which~~that compensates for the primary radiation pattern by weighting signals of the functional antenna branches.

2. (Currently Amended) A method of weighting signals in a radio system, the method comprising:

weighting signals of at least two functional antenna branches of a base station with primary weights to form a primary radiation pattern;

disconnecting at least one antenna branch; and

weighting signals of the functional antenna branches with weights ~~which~~that compensate for the primary weights to form a compensating radiation pattern.

3. (Currently Amended) A method of weighting signals in a radio system, the method comprising:

weighting signals of at least two functional antenna branches of a base station with primary weights to form a primary radiation pattern;

disconnecting at least one antenna branch; and

~~A method according to claim 2, further comprising~~ weighting signals of the functional antenna branches with previously known weights that compensate for the primary weights to form a compensating radiation pattern.

4. (Currently Amended) ~~A~~The method according to claim 2, further comprising: weighting signals of the functional antenna branches with weights ~~which~~that differ from the primary weights.

5. (Currently Amended) ~~A~~The method according to claim 1 or 2, wherein the primary radiation pattern is fixed and the compensating radiation pattern is fixed.

6. (Currently Amended) ~~A~~The method according to claim 1 or 2, wherein the primary radiation pattern is the radiation pattern used in transmission, the disconnected antenna branch is the transmitting antenna branch, and the compensating radiation pattern is the radiation pattern used in transmission.

7. (Currently Amended) ~~A-~~The method according to claim 1 or 2, wherein the primary radiation pattern is the radiation pattern used in transmission, the disconnected antenna branch is the transmitting antenna branch, and the compensating radiation pattern is the radiation pattern used in transmission; and

wherein a radiation pattern ~~which~~that is to be used in reception and corresponds to the compensating radiation pattern used in transmission is formed by weighting signals of the receiving antenna branches.

8. (Currently Amended) ~~A-~~The method according to claim 1 or 2, wherein the primary radiation pattern is the radiation pattern used in reception, the disconnected antenna branch is the receiving antenna branch, and the compensating radiation pattern is the radiation pattern used in reception.

9. (Currently Amended) ~~A-~~The method according to claim 1 or 2, wherein the primary radiation pattern is the radiation pattern used in reception, the disconnected antenna branch is the receiving antenna branch, and the compensating radiation pattern is the radiation pattern used in reception; and

wherein a radiation pattern ~~which~~that is to be used in transmission and corresponds to the compensating radiation pattern used in reception is formed by weighting signals of the transmitting antenna branches.

10. (Currently Amended) ~~A—~~The method according to claim 1 or 2, further comprising:

forming the radiation pattern ~~which~~that compensates for the primary radiation pattern by weighting signals of the functional antenna branches so that compensation occurs in the azimuth direction.

11. (Currently Amended) ~~A—~~The method according to claim 1 or 2, further comprising:

forming the radiation pattern compensating for the primary radiation pattern by weighting signals of the functional antenna branches so that compensation occurs in the elevation direction.

12. (Currently Amended) ~~A—~~The method according to claim 1 or 2, further comprising:

forming the compensating radiation pattern by weighting signals of the functional antenna branches with previously known weights.

13. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:  
forming the compensating radiation pattern by weighting signals of the functional antenna branches with weights ~~which~~that differ from the weights used ~~for forming~~to form the primary radiation pattern.

14. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:  
forming the compensating radiation pattern by weighting signals of the functional antenna branches digitally.

15. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:

forming the compensating radiation pattern by weighting signals of the functional antenna branches with weights ~~which~~that are based on the configuration of the functional antenna elements in the antenna array.

16. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:

forming the compensating radiation pattern by weighting signals of the functional antenna branches with weights ~~which~~that are based on the radiation patterns formed by single antenna elements.

17. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:  
forming the compensating radiation pattern by weighting signals of the functional antenna branches with weights ~~which~~that are based on the weighting function of the aperture of the antenna array.

18. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:  
forming the compensating radiation pattern by weighting signals of the functional antenna branches so that the main beams of the compensating radiation pattern overlap at least partly with the main beams of the primary radiation pattern.

19. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:

forming the compensating radiation pattern by weighting signals of the functional antenna branches so that at least one main beam of the primary radiation pattern is compensated with at least one main beam of the compensating radiation pattern.

20. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:

forming the compensating radiation pattern by weighting signals of the functional antenna branches so that at least one main beam of the primary radiation pattern is compensated with one main beam of the compensating radiation pattern and coding of the signals of the compensating main beam is the same as the coding of the signals of the main beam to be compensated for.

21. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:

forming the compensating radiation pattern by weighting signals of the functional antenna branches so that at least one main beam of the primary radiation pattern is compensated with one main beam of the compensating radiation pattern and the identification signal of the compensating main beam is the same as the identification signal of the main beam to be compensated for.

22. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:

forming the compensating antenna beam structure by weighting signals of the functional antenna branches so that the dynamic range of the main beams of the compensating radiation pattern is optimized.

23. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:

calibrating the functional antenna branches after the compensating radiation pattern has been formed.

24. (Currently Amended) ~~A—~~The method according to claim 1, further comprising:

forming a command for disconnecting at least one antenna branch; and  
disconnecting said at least one antenna branch ~~on the basis of~~based on the  
command formed.

25. (Currently Amended) A radio system comprising:  
a base station ~~for forming~~configured to form a radio interface of the radio system;  
the base station comprises at least two antenna branches for establishing a radio  
link to terminals;  
each antenna branch comprises at least one antenna element ~~for forming~~configured  
to form an antenna array; and  
the base station comprises weighting means for weighting signals of the functional  
antenna branches ~~for forming~~configured to form a primary radiation pattern,  
wherein the base station is ~~arranged~~configured to disconnect at least one antenna  
branch; and  
wherein the weighting means ~~are~~is arrangedconfigured to weight signals of the  
functional antenna branches to form a radiation pattern ~~which~~that compensates for the  
primary radiation pattern.

26. (Currently Amended) ~~A~~The radio system according to claim 25, wherein the  
base station is ~~arranged~~configured to form a fixed primary radiation pattern; and



wherein the weighting means ~~are~~is arrangedconfigured to form a fixed compensating radiation pattern.

27. (Currently Amended) ~~A-~~The radio system according to claim 25, wherein the antenna branches are ~~arranged~~configured to transmit a signal;

wherein the weighting means ~~are~~is arrangedconfigured to weight transmission signals of the antenna branches;

wherein the base station is ~~arranged~~configured to disconnect at least one transmitting antenna branch; and

wherein the weighting means ~~are~~is arrangedconfigured to weight the transmission signals of the functional antenna branches to form a radiation pattern for transmission ~~which~~that compensates for the primary radiation pattern used for transmission.

28. (Currently Amended) ~~A-~~The radio system according to claim 25, wherein the antenna branches are ~~arranged~~configured to transmit a signal;

wherein the weighting means ~~are~~is arrangedconfigured to weight transmission signals of the antenna branches;

wherein the base station is ~~arranged~~configured to disconnect at least one transmitting antenna branch;

wherein the weighting means ~~are~~is arranged~~configured~~ to weight transmission signals of the functional antenna branches to form a radiation pattern for transmission ~~which~~that compensates for the primary radiation pattern used in transmission; and

wherein the weighting means ~~are~~is also arranged~~configured~~ to weight receiving signals of the antenna branches so that the radiation pattern for reception corresponds to the compensating radiation pattern used in transmission.

29. (Currently Amended) ~~A~~The radio system according to claim 25, wherein the antenna branches are ~~arranged~~configured to receive a signal;

wherein the weighting means ~~are~~is arranged~~configured~~ to weight reception signals of the antenna branches;

wherein the base station is ~~arranged~~configured to disconnect at least one receiving antenna branch;

wherein the weighting means ~~are~~is arranged~~configured~~ to weight reception signals of the functional antenna branches to form a radiation pattern for reception ~~which~~that compensates for the primary radiation pattern used in reception; and

wherein the weighting means ~~are~~is also arranged~~configured~~ to weight transmission signals of the functional antenna branches so that the radiation pattern formed for transmission corresponds to the compensating radiation pattern used in reception.

30. (Currently Amended) ~~A~~The radio system according to claim 25, wherein the weighting means ~~are~~is arranged~~configured~~ to weight signals of the antenna branches so that compensation occurs in the azimuth direction.

31. (Currently Amended) ~~A~~The radio system according to claim 25, wherein the weighting means ~~are~~is arranged~~configured~~ to weight signals of the functional antenna branches so that compensation occurs in the elevation direction.

32. (Currently Amended) A radio system comprising:  
a base station configured to form a radio interface of the radio system;  
the base station comprises at least two antenna branches for establishing a radio  
link to terminals;  
each antenna branch comprises at least one antenna element configured to form an  
antenna array; and  
the base station comprises weighting means for weighting signals of the functional  
antenna branches configured to form a primary radiation pattern,  
wherein the base station is configured to disconnect at least one antenna branch;  
and

~~A radio system according to claim 25,~~ wherein the weighting means ~~are~~is arranged  
configured to weight signals of the functional antenna branches with previously known

weights ~~to form the compensating radiation pattern~~ to form a radiation pattern that compensates for the primary radiation pattern.

33. (Currently Amended) ~~A-~~ The radio system according to claim 25, wherein the weighting means ~~are~~ is arranged configured to weight signals of the functional antenna branches digitally to form a compensating radiation pattern.

34. (Currently Amended) ~~A-~~ The radio system according to claim 25, wherein the weighting means ~~are~~ is arranged configured to weight signals of the functional antenna branches with weights ~~which~~ that are based on the configuration of the functional antenna elements in the antenna array.

35. (Currently Amended) ~~A-~~ The radio system according to claim 25, wherein the weighting means ~~are~~ is arranged configured to weight signals of the functional antenna branches with weights ~~which~~ that are based on the radiation patterns formed by single functional antenna elements.

36. (Currently Amended) ~~A-~~ The radio system according to claim 25, wherein the weighting means ~~are~~ is arranged configured to weight signals of the functional antenna branches with weights ~~which~~ that are based on the weighting function of the aperture in the antenna array.

37. (Currently Amended) ~~A-~~The radio system according to claim 25, wherein the weighting means ~~are~~is ~~arranged~~configured to weight signals of the functional antenna branches so that the main beams of the compensating radiation pattern overlap at least partly with the main beams of the primary radiation pattern.

38. (Currently Amended) ~~A-~~The radio system according to claim 25, wherein the weighting means ~~are~~is ~~arranged~~configured to weight signals of the functional antenna branches so that at least one main beam of the primary radiation pattern is compensated with at least one main beam of the compensating radiation pattern.

39. (Currently Amended) ~~A-~~The radio system according to claim 25, wherein the weighting means ~~are~~is ~~arranged~~configured to weight signals of the functional antenna branches so that at least one main beam of the primary radiation pattern is compensated with one main beam of the compensating radiation pattern and the coding of the signals of each compensating main beam is the same as the coding of the signals of the main beam to be compensated for.

40. (Currently Amended) ~~A-~~The radio system according to claim 25, wherein the weighting means ~~are~~is ~~arranged~~configured to weight signals of the functional antenna branches so that at least one main beam of the primary radiation pattern is compensated

with one main beam of the compensating radiation pattern and the identification signal of each compensating main beam is the same as the identification signal of the main beam to be compensated for.

41. (Currently Amended) A ~~The~~ radio system according to claim 25, wherein the weighting means ~~are~~is arranged~~configured~~ to weight signals of the functional antenna branches so that the dynamic range of the main beams of the compensating radiation pattern is optimized.

42. (Currently Amended) A ~~The~~ radio system according to claim 25, wherein the base station comprises means for calibrating the antenna branches.

43. (Currently Amended) A ~~The~~ radio system according to claim 25, wherein the base station is ~~arranged~~configured to form a command for disconnecting at least one antenna branch; and

wherein the base station is ~~arranged~~configured to disconnect said at least one antenna branch ~~on the basis of~~based on the command formed.

44. (Currently Amended) A base station of a radio system, comprising:

at least two antenna branches for establishing a radio link to terminals, each antenna branch comprising at least one antenna element for forming an antenna array;  
and

weighting means for weighting signals of the functional antenna branches ~~for forming to form~~ a primary radiation pattern,

wherein the base station is ~~arranged~~ configured to disconnect at least one antenna branch; ~~and~~

wherein the weighting means ~~are~~ is arranged configured to weight signals of the functional antenna branches to form a radiation pattern ~~which~~ that compensates for the primary radiation pattern.

45. (Currently Amended) ~~A~~ The base station according to claim 44, wherein the base station is ~~arranged~~ configured to form a fixed primary radiation pattern; ~~and~~

wherein the weighting means ~~are~~ is ~~arranged~~ configured to form a fixed compensating radiation pattern.

46. (Currently Amended) ~~A~~ The base station according to claim 44, wherein the antenna branches are ~~arranged~~ configured to transmit a signal; ~~and~~

wherein the weighting means ~~are~~ are arranged configured to weight transmission signals of the antenna branches; ~~and~~

wherein the base station is ~~arranged~~configured to disconnect at least one transmitting antenna branch<sub>1</sub> and

wherein the weighting means ~~are~~is ~~arranged~~configured to weight the transmission signals of the functional antenna branches to form a radiation pattern for transmission ~~which~~that compensates for the primary radiation pattern used for transmission.

47. (Currently Amended) ~~A~~The base station according to claim 44, wherein the antenna branches are ~~arranged~~configured to transmit a signal<sub>1</sub>

wherein the weighting means ~~are~~is ~~arranged~~configured to weight transmission signals of the antenna branches<sub>2</sub>

wherein the base station is ~~arranged~~configured to disconnect at least one transmitting antenna branch<sub>1</sub>

wherein the weighting means ~~are~~is ~~arranged~~configured to weight transmission signals of the functional antenna branches to form a radiation pattern for transmission ~~which~~that compensates for the primary radiation pattern used in transmission<sub>1</sub> and

wherein the weighting means ~~are~~is also ~~arranged~~configured to weight receiving signals of the antenna branches so that the radiation pattern for reception corresponds to the compensating radiation pattern used in transmission.

48. (Currently Amended) ~~A~~The base station according to claim 44, wherein the antenna branches are ~~arranged~~configured to receive a signal<sub>1</sub>



wherein the weighting means ~~are~~is arranged~~configured~~ to weight reception signals of the antenna branches;

wherein the base station is ~~arranged~~configured to disconnect at least one receiving antenna branch;

wherein the weighting means ~~are~~is arranged~~configured~~ to weight reception signals of the functional antenna branches to form a radiation pattern for reception ~~which~~that compensates for the primary radiation pattern used in reception; and

wherein the weighting means ~~are~~is also arranged~~configured~~ to weight transmission signals of the functional antenna branches so that the radiation pattern formed for transmission corresponds to the compensating radiation pattern used in reception.

49. (Currently Amended) ~~A~~The base station according to claim 44, wherein the weighting means ~~are~~is arranged~~configured~~ to weight signals of the antenna branches so that compensation occurs in the azimuth direction.

50. (Currently Amended) ~~A~~The radio system according to claim 44, wherein the weighting means ~~are~~is arranged~~configured~~ to weight signals of the functional antenna branches so that compensation occurs in the elevation direction.

51. (Currently Amended) A base station of a radio system, comprising:

at least two antenna branches for establishing a radio link to terminals, each antenna branch comprising at least one antenna element for forming an antenna array;  
and

weighting means for weighting signals of the functional antenna branches to form a primary radiation pattern,

wherein the base station is configured to disconnect at least one antenna branch,  
and

~~A base station according to claim 44,~~ wherein the weighting means ~~are~~ is  
~~arranged~~ configured to weight signals of the functional antenna branches with previously  
known weights to form the compensating radiation pattern.

52. (Currently Amended) ~~A~~ The base station according to claim 44, wherein the  
weighting means ~~are~~ is ~~arranged~~ configured to weight signals of the functional antenna  
branches digitally to form a compensating radiation pattern.

53. (Currently Amended) ~~A~~ The base station according to claim 44, wherein the  
weighting means ~~are~~ is ~~arranged~~ configured to weight signals of the functional antenna  
branches with weights ~~which~~ that are based on the configuration of the functional antenna  
elements in the antenna array.

54. (Currently Amended) ~~A~~The base station according to claim 44, wherein the weighting means ~~are~~is ~~arranged~~configured to weight signals of the functional antenna branches with weights ~~which~~that are based on the radiation patterns formed by single functional antenna elements.

55. (Currently Amended) ~~A~~The base station according to claim 44, wherein the weighting means ~~are~~is ~~arranged~~configured to weight signals of the functional antenna branches with weights ~~which~~that are based on the weighting function of the aperture in the antenna array.

56. (Currently Amended) ~~A~~The base station according to claim 44, wherein the weighting means ~~are~~is ~~arranged~~configured to weight signals of the functional antenna branches so that the main beams of the compensating radiation pattern overlap at least partly with the main beams of the primary radiation pattern.

57. (Currently Amended) ~~A~~The base station according to claim 44, wherein the weighting means ~~are~~is ~~arranged~~configured to weight signals of the functional antenna branches so that at least one main beam of the primary radiation pattern is compensated with at least one main beam of the compensating radiation pattern.

58. (Currently Amended) ~~A-~~The base station according to claim 44, wherein the weighting means ~~are~~is ~~arranged~~configured to weight signals of the functional antenna branches so that at least one main beam of the primary radiation pattern is compensated with one main beam of the compensating radiation pattern and the coding of the signals of each compensating main beam is the same as the coding of the signals of the main beam to be compensated for.

59. (Currently Amended) ~~A-~~The base station according to claim 44, wherein the weighting means ~~are~~is ~~arranged~~configured to weight signals of the functional antenna branches so that at least one main beam of the primary radiation pattern is compensated with one main beam of the compensating radiation pattern and the identification signal of each compensating main beam is the same as the identification signal of the main beam to be compensated for.

60. (Currently Amended) ~~A-~~The base station according to claim 44, wherein the weighting means ~~are~~is ~~arranged~~configured to weight signals of the functional antenna branches so that the dynamic range of the main beams of the compensating radiation pattern is optimized.

61. (Currently Amended) ~~A-~~The base station according to claim 44, wherein the base station comprises means for calibrating the antenna branches.

62. (Currently Amended) A ~~The~~ base station according to claim 44, wherein the base station is ~~arranged~~configured to form a command for disconnecting at least one antenna branch; and

wherein the base station is ~~arranged~~configured to disconnect said at least one antenna branch ~~on the basis of~~based on the command formed.

63. (New) A method of compensating for a radiation pattern in a radio system, the method comprising:

forming a primary radiation pattern by weighting signals of at least two functional antenna branches of a base station;

disconnecting at least one antenna branch; and

forming a radiation pattern that compensates for the primary radiation pattern by weighting signals of the functional antenna branches with previously known weights.